

CLAIMS

What is claimed is:

1. A probe to measure pulse-based differences in light absorbance by the vascularized tissue of the septum of the nose of a patient in need thereof, comprising:
 - a. a housing from which emanates two extensions, each said extension sized and spaced to enter one nares of the nose, and each said extension flexible so as to deflect from the wall of the septum;
 - b. at least two light-generating components that emit light at at least two different wavelength bands, positioned on the inside face of one of the two extensions;
 - c. at least one light-detecting component that detects light transmitted from said at least two light-generating components, positioned on the inside face of the other of the two extensions; and
 - d. first individual conductors for energizing said at least two light-generating components, connecting said components to a monitoring system for light signal production and modulation, and second individual conductors connecting said at least one light-detecting component to said monitoring system to convey signals of light detected by said at least one light-detecting component, said first and said second individual conductors passing within said housing and thereafter through a cable for carrying said first and said second individual conductors to said monitoring systemwherein data obtained from said probe is used to provide pulse oximetry results, other plethysmophotometric results, or both.
2. The probe of claim 1, wherein each of said extensions comprises an inward angle of inflection between about 10 and about 27 degrees.

3. The probe of claim 1, wherein each of said extensions comprises an inward angle of inflection between about 10 and about 20 degrees.
4. The probe of claim 1, wherein each of said extensions comprises an inward angle of inflection of about 15 degrees.
5. The probe of claim 1, wherein each of said extensions comprises an inward angle of inflection, said angle of inflection being sufficient to place said at least two light-generating components and said at least one light-detecting component adjacent to Kiesselbach's plexus.
6. The probe of claim 1, additionally comprising a protective plastic covering sleeve configured to fit over said extensions and over the top of said housing.
7. The probe of claim 1, additionally comprising a cannula to supply oxygen to said patient and a sampling apparatus to obtain exhaled gases for determination of carbon dioxide content.
8. A probe to measure pulse-based differences in light absorbance by the vascularized tissue of the septum of the nose of a patient in need thereof, integral with a cannula to supply oxygen or oxygen-rich gas into the nose, comprising:
 - a. a housing from which emanates two extensions, each said extension sized and spaced to enter one nares of the nose, and each said extension flexible so as to deflect from the wall of the septum, wherein one or both extensions are fashioned to provide one or more passages for transport of said oxygen or oxygen-rich gas into the nose;
 - b. at least two light-generating components that emit light at at least two different wavelength bands, positioned on the inside face of one of the two extensions;

- c. at least one light-detecting component that detects light transmitted from said at least two light-generating components, positioned on the inside face of the other of the two extensions; and
 - d. first individual conductors for energizing said at least two light-generating components, connecting said components to a monitoring system for light signal production and modulation, and second individual conductors connecting said at least one light-detecting component to said monitoring system to convey signals of light detected by said at least one light-detecting component, said first and said second individual conductors passing within said housing and thereafter through a cable for carrying said first and said second individual conductors to said monitoring system
- wherein data obtained from said probe is used to provide pulse oximetry results, other plethysmophotometric results, or both.
9. The probe of claim 8, additionally comprising at least one additional sensor to aid in the study of sleep apnea, said at least one additional sensor selected from the group consisting of air flow, air pressure, end tidal carbon dioxide and respiration pattern recognition.
10. The probe of claim 8, wherein each extension is substantially longer than wide.
11. A probe to measure pulse-based differences in light absorbance by the vascularized tissue of the septum of the nose, comprising:
- a. a housing from which emanates two extensions providing a non-contiguous fit with regard to said septum;
 - b. at least two light-generating components that emit light at at least two different wavelength bands, positioned on the inside face of one of the two extensions;

- c. at least one light-detecting component that detects light transmitted from said at least two light-generating components, positioned on the inside face of the other of the two extensions; and
- d. first individual conductors for energizing said at least two light-generating components, connecting said components to a monitoring system for light signal production and modulation, and second individual conductors connecting said at least one light-detecting component to said monitoring system to convey signals of light detected by said at least one light-detecting component, said first and said second individual conductors passing within said housing and thereafter through a cable for carrying said first and said second individual conductors to said monitoring system

wherein said two extensions are sized and spaced such that there is not a pressing or a continuous contact against the mucosal tissue of the nasal septum by both said extensions where are positioned said at least two light-generating components and said at least one light detecting component, and wherein data obtained from said probe is used to provide pulse oximetry results, other plethysmophotometric results, or both.

- 12. The probe of claim 11, wherein each of said extensions comprises an inward angle of inflection between about 10 and about 27 degrees.
- 13. The probe of claim 11, wherein each of said extensions comprises an inward angle of inflection between about 10 and about 20 degrees.
- 14. The probe of claim 11, wherein each of said extensions comprises an inward angle of inflection of about 15 degrees.
- 15. The probe of claim 11, wherein each of said extensions comprises an inward angle of inflection, said angle of inflection being sufficient to place said at least two light-

generating components and said at least one light-detecting component adjacent to Kiesselbach's plexus.

16. The probe of claim 11, additionally comprising a protective plastic covering sleeve configured to fit over said extensions and over the top of said housing.

17. The probe of claim 11, additionally comprising a cannula to supply oxygen to said patient.

18. The probe of claim 11, additionally comprising a cannula to supply oxygen to said patient and a sampling apparatus to obtain exhaled gases for determination of carbon dioxide content.

19. The probe of claim 11, wherein said extensions are constructed with plastic to have 60-90 durometer flexibility, and to not simultaneously press into respective sides of said septum where are positioned said at least two light-generating components and said at least one light-detecting component.

20. The probe of claim 19, wherein said at least two light-generating components and said at least one light-detecting component do not protrude from the respective inner sides of said extensions.